WHAT IS CLAIMED:

1. A method of evaluating the effect of a physiological condition on the occurrence of ventricular fibrillation, said method comprising:

providing a test system;

initiating a ventricular fibrillation inducing sequence in the test system by interrupting normal sinus heart rhythm with premature electrical stimuli;

initiating a ventricular fibrillation recovery sequence in the test system following said initiating a ventricular fibrillation inducing sequence;

subjecting the test system to a physiological condition to be tested before, during, or after said initiating a ventricular fibrillation recovery sequence; and

identifying physiological conditions which affect ventricular fibrillation recovery in the test system.

2. The method according to claim 1, wherein the said physiological condition to be tested is velocity restitution.

3. The method according to claim 1, wherein the said physiological condition to be tested is action potential duration restitution.

4. The method according to claim 1, wherein the said physiological condition to be tested is cardiac memory.

5. The method according to claim 1, wherein said initiating a ventricular fibrillation inducing sequence is carried out by initiating 4 premature stimuli under conditions effective to initiate an excitatory wave.

6. The method according to claim 1, wherein said initiating a ventricular fibrillation recovery sequence is carried out by altering velocity recovery function to slow conduction at shorter rest intervals.

7. The method according to claim 1, wherein said initiating a ventricular fibrillation recovery sequence is carried out by altering action potential duration recovery function to reduce sensitivity of action potential duration to a preceding rest interval.

8. The method according to claim 1, wherein said initiating a ventricular fibrillation recovery sequence is carried out by increasing cardiac memory.

9. The method according to claim 1, wherein the test system is selected from the group consisting of a subject, a tissue, a cell culture, and an *in vitro* system.

10. The method according to claim 9, wherein the test system is a test animal.

11. A method of identifying treatment candidates as therapeutic strategies for prevention of ventricular fibrillation, said method comprising:

providing a test system;

initiating a ventricular fibrillation inducing sequence in the test system by interrupting normal sinus heart rhythm with premature electrical stimuli before, during, or after administering the treatment candidate to the test system; and

identifying treatment candidates which prevent said initiating from inducing ventricular fibrillation as therapeutic strategies for prevention of ventricular fibrillation.

12. The method according to claim 11, wherein the treatment candidate is a pharmaceutical compound.

13. The method according to claim 12, wherein the pharmaceutical compound is a calcium channel antagonist.

14. The method according to claim 11, wherein the treatment candidate is one or more electrical impulses.

15. The method according to claim 11, wherein said identifying identifies treatment candidates which achieve velocity restitution values consistent with the histograms of Figures 8B and 8C as therapeutic strategies for prevention of ventricular fibrillation.

16. The method according to claim 11, wherein said identifying identifies treatment candidates which achieve potential duration restitution values consistent with the histograms of Figures 9B and 9C as therapeutic strategies for prevention of ventricular fibrillation.

17. The method according to claim 11, said identifying identifies treatment candidates which achieve cardiac memory values consistent with the histograms of Figures 10B and 10C as therapeutic strategies for prevention of ventricular fibrillation.

18. The method according to claim 11, wherein the test system is selected from the group consisting of a subject, a tissue, a cell culture, and an *in vitro* system.

19. The method according to claim 18, wherein the test system is a test animal.

20. The method according to claim 11, wherein said initiating a ventricular fibrillation inducing sequence is carried out by initiating 4 premature stimuli under conditions effective to initiate an excitatory wave.

21. A method of identifying treatment candidates as therapeutic strategies for treating ventricular fibrillation, said method comprising:

providing a test system;

initiating a ventricular fibrillation inducing sequence in the test system by interrupting normal sinus heart rhythm with premature electrical stimuli resulting in ventricular fibrillation in the test system;

administering the treatment candidate to the test system undergoing ventricular fibrillation; and

identifying treatment candidates which modulate ventricular fibrillation as therapeutic strategies for treatment of ventricular fibrillation.

22. The method according to claim 21, wherein the treatment candidate is a pharmaceutical compound.

23. The method according to claim 22, wherein the pharmaceutical compound is a calcium channel antagonist.

24. The method according to claim 21, wherein the treatment candidate is one or more electrical impulses.

25. The method according to claim 21, wherein said identifying identifies treatment candidates which achieve velocity restitution values consistent with the histograms of Figures 8B and 8C as therapeutic strategies for prevention of ventricular fibrillation.

26. The method according to claim 21, wherein said identifying identifies treatment candidates which achieve potential duration restitution values consistent with the histograms of Figures 9B and 9C as therapeutic strategies for prevention of ventricular fibrillation.

27. The method according to claim 21, said identifying identifies treatment candidates which achieve cardiac memory values consistent with the

histograms of Figures 10B and 10C as therapeutic strategies for prevention of ventricular fibrillation.

28. The method according to claim 21, wherein the test system is selected from the group consisting of a subject, a tissue, a cell culture, and an *in vitro* system.

29. The method according to claim 28, wherein the test system is a test animal.

30. The method according to claim 21, wherein said initiating a ventricular fibrillation inducing sequence is carried out by initiating 4 premature stimuli under conditions effective to initiate an excitatory wave.

31. A method for evaluating the predisposition of a subject for the induction of ventricular fibrillation from a condition of ventricular tachycardia, said method comprising:

providing a subject in ventricular tachycardia;

monitoring the electrical stimuli in the heart of the subject;

determining if a sequence of rest interval values correspond to rest interval values predicted to lead to ventricular fibrillation consistent with the histogram of Figure 7.

32. A method of identifying treatment candidates as therapeutic strategies for preventing ventricular tachycardia from developing into ventricular fibrillation, said method comprising:

providing a subject in ventricular tachycardia;

monitoring the electrical stimuli in the heart of the subject;

determining if an initial 3 stimuli in groups of 4 stimuli in the heart correspond to rest interval values predicted to lead to ventricular fibrillation consistent with the histogram of Figure 7;

identifying treatment candidates which prevent occurrence of a fourth stimuli corresponding to a rest interval value predicted to lead to ventricular fibrillation consistent with the histogram of Figure 7;

identifying treatment candidates which prevent said ventricular tachycardia from becoming ventricular fibrillation as therapeutic strategies for prevention of ventricular fibrillation.

33. The method according to claim 32, wherein the treatment candidate is a pharmaceutical compound.

34. The method according to claim 33, wherein the pharmaceutical compound is a calcium channel antagonist.

35. The method according to claim 32, wherein the treatment candidate is one or more electrical impulses.

36. The method according to claim 32, wherein said identifying identifies treatment candidates which achieve velocity restitution values consistent with the histograms of Figures 8B and 8C as therapeutic strategies for prevention of ventricular fibrillation.

37. The method according to claim 32, wherein said identifying identifies treatment candidates which achieve potential duration restitution values consistent with the histograms of Figures 9B and 9C as therapeutic strategies for prevention of ventricular fibrillation.

38. The method according to claim 32, said identifying identifies treatment candidates which achieve cardiac memory values consistent with the histograms of Figures 10B and 10C as therapeutic strategies for prevention of ventricular fibrillation.